WHAT IS CLAIMED IS:

1. (currently amended) A rotary machine element for chucking workpieces or tools, the rotary machine element comprising:

at least one functional part ~~(3 to 5)~~ adapted to perform at least one of clamping, aligning and centering of a workpiece or a tool and to perform ~~performing~~ movements into stop positions correlated with at least one of clamping, aligning and centering of a workpiece, which stop positions are nominal stop positions or mechanical terminal stop positions and are functionally correlated;

at least one position sensor ~~(6)~~ configured to detect individual actual position values of the stop positions independently from one another;

wherein the at least one position sensor ~~(6)~~ is located in a control path between the at least one functional part ~~(3 to 5)~~ and ~~an CN~~ a numerical control-based control;

wherein the control path is active in positions between the nominal stop positions; the mechanical terminal stop positions; or the nominal stop positions and the mechanical terminal stop positions.

2. (currently amended) The rotary machine element according to claim 1, comprising means for actuating the at least one functional part ~~(3 to 5)~~, wherein the means for actuating is a hydraulic drive means, a pneumatic drive means, a mechanical drive means, or an electromechanical drive means.

3. (currently amended) The rotary machine element according to claim 2, comprising a distributer ~~(10)~~ configured to supply a hydraulic medium for actuating the at least one functional part ~~(3 to 5)~~ by the hydraulic drive means.

4. (currently amended) The rotary machine element according to claim 3, comprising a rotary passage ~~(11)~~, wherein the distributor ~~(10)~~ is connected to the rotary passage ~~(11)~~.

5. (currently amended) The rotary machine element according to claim 1, wherein the at least one position sensor ~~(6)~~ is stationary.

6. (currently amended) The rotary machine element according to claim 3, wherein the at least one position sensor ~~(6)~~ is stationary and fastened on the distributor

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~~(10)~~.

7. (currently amended) The rotary machine element according to claim 1, wherein the at least one position sensor ~~(6)~~ has a projection ~~(24)~~ positioned on a rotary axis of the rotary machine element ~~(1)~~.

8. (currently amended) The rotary machine element according to claim 7, wherein the at least one position sensor ~~(6)~~ functions based on laser technology, optics, ultrasound, or magnetostriction.

9. (currently amended) The rotary machine element according to claim 7, wherein the at least one position sensor ~~(6)~~ is positioned coaxially to the rotary axis of the rotary machine element ~~(1)~~.

10. (currently amended) The rotary machine element according to claim 7, wherein the at least one function part ~~(3 to 5)~~ has at least one position transducer ~~(7 to 9)~~ configured to cooperate with the at least one position sensor ~~(6)~~.

11. (currently amended) The rotary machine element according to claim 10, wherein the at least one position transducer ~~(7 to 9)~~ is annular and surrounds the projection ~~(24)~~.

12. (currently amended) The rotary machine element according to claim 1 ~~12~~, wherein the at least one function part ~~(3 to 5)~~ moves relative to the at least one position sensor ~~(6)~~.

13. (currently amended) The rotary machine element according to claim 1, comprising several of the functional parts ~~(3 to 5)~~, wherein the functional parts ~~(3 to 5)~~ are movable independently from one another.

14. (currently amended) The rotary machine element according to claim 13, wherein the functional parts ~~(3 to 5)~~ are provided with a position transducer ~~(7 to 9)~~, respectively.

15. (currently amended) The rotary machine element according to claim 14, wherein the position transducer ~~(7 to 9)~~ is fixedly connected to the functional parts ~~(3 to 5)~~, respectively.

16. (currently amended) The rotary machine element according to claim 14, wherein the position transducer ~~(7 to 9)~~ cooperates with a single one of the at least one

position sensor ~~(6)~~.

17. (currently amended) The rotary machine element according to claim 14, wherein the position transducer ~~(7 to 9)~~ is movable relative to the at least one position sensor (6).

18. (currently amended) The rotary machine element according to claim 14, wherein several of the at least one position sensor ~~(6)~~ are provided.

19. (currently amended) The rotary machine element according to claim 18, wherein the position sensors ~~(6)~~ are arranged concentrically to an axis of the position transducers ~~(7 to 9)~~.

20. (currently amended) The rotary machine element according to claim 18, wherein the position sensors ~~(6)~~ are arranged parallel to a rotary axis of the rotating machine element ~~(1)~~.

21. (currently amended) The rotary machine element according to claim 14, wherein the at least one position sensor ~~(6)~~ is moveable relative to the position transducer ~~(7 to 9)~~.

22. (currently amended) The rotary machine element according to claim 14, wherein the position transducer ~~(7 to 9)~~ is movable proportionally to the functional support parts ~~(3 to 5)~~, respectively.

23. (currently amended) The rotary machine element according to claim 22, wherein the rotary machine element ~~(1)~~ is a workpiece carrier ~~(2)~~ configured to receive a workpiece (18).

24. (currently amended) The rotary machine element according to claim 23, wherein the workpiece carrier ~~(2)~~ is a chuck.

25. (currently amended) The rotary machine element according to claim 24, wherein the chuck ~~(2)~~ comprises a centering tip ~~(3)~~, alignment elements ~~(4)~~, checking elements, and clamping elements ~~(5)~~ as the functional parts.

26. (currently amended) The rotary machine element according to claim 1, wherein the rotary machine element ~~(1)~~ is a tool carrier ~~(15)~~ configured to receive a tool (17).

27. (currently amended) The rotary machine element according to claim

26, wherein the tool carrier ~~(15)~~ is a radial facing slide tool.

28. (currently amended) The rotary machine element according to claim 26, wherein the tool carrier ~~(15)~~ is a bore rod.

29. (currently amended) The rotary machine element according to claim 28, wherein the bore rod ~~(15)~~ has at least one radially adjustable cutting edge for producing a bore.

30. (currently amended) The rotary machine element according to claim 1, wherein the rotary machine element ~~(1)~~ is a work spindle ~~(16)~~ of a machine tool configured to receive a tool (17).

31. (currently amended) The rotary machine element according to claim 30, wherein the at least one position sensor ~~(6)~~ is arranged in the work spindle ~~(16)~~ for monitoring a correct clamping position of the tool ~~(17)~~.

32. (currently amended) The rotary machine element according to claim 1, wherein the nominal stop positions are mechanical stop positions determined by a geometry of a workpiece ~~(18)~~ to be received in the rotary machine element.

33. (original) The rotary machine element according to claim 1, wherein the nominal stop positions are positions without mechanical stop.

34. (currently amended) The rotary machine element according to claim 1, wherein the at least one position sensor ~~(6)~~ in the nominal stop positions or in the mechanical terminal stop positions is used for reference point determination or diagnostics.

35. (currently amended) A method for detecting position values of at least one functional part of a rotating machine element <u>for chucking workpieces or tools, the rotating machine element</u> comprising at least one functional part ~~(3 to 5)~~ <u>adapted to perform at least one of clamping, aligning and centering of a workpiece or a tool and to perform</u> ~~performing~~ movements into stop positions <u>correlated with at least one of clamping, aligning and centering of a workpiece</u>, which stop positions are nominal stop positions or mechanical terminal stop positions and are functionally correlated; at least one position sensor ~~(6)~~ configured to detect individual actual position values of the stop positions independently from one another; wherein the at least one position sensor ~~(6)~~ is located in a control path between the at least one functional part ~~(3 to 5)~~ and ~~an NC~~ <u>numerical</u>

control-based control; wherein the control path is active in positions between the nominal stop positions; the mechanical terminal stop positions; or the nominal stop positions and the mechanical terminal stop positions; the method comprising the steps of:

acquiring actual position values of the at least one functional part ~~(3 to 5)~~; and

based on the actual position values, determining the speed and acceleration of the at least one functional part ~~(3 to 5)~~ by means of a numerical control-based control ~~an NC-control~~.

36. (currently amended) The method according to claim 35, wherein, in the step of determining, a travel distance, the speed, and the acceleration are individually determined for each one of the functional parts ~~(3 to 5)~~ and processed in a control loop.

37. (currently amended) The method according to claim 35, further comprising the step of carrying out movements of the functional parts ~~(3 to 5)~~, which movements are functionally correlated to one another, in exact relation to one another.

38. (currently amended) The method according to claim 35, wherein the travel distances, the speeds, and the accelerations of the functional part ~~(3 to 5)~~ are programmed, processed, and saved in data processing devices or in numerical control devices.

39. (currently amended) The method according to claim 35, further comprising the steps of providing a software program and data processing devices, wherein the at least one position sensor ~~(6)~~ in combination with the software programs and the data processing devices enables functions of measuring, checking, monitoring, and controlling as well as combinations of the functions.

40. (currently amended) The method according to claim 39, wherein data generated by the at least one position sensor ~~(6)~~ are processed and required information is transmitted to peripheral devices.

41. (currently amended) The method according to claim 35, wherein, in the step of acquiring the actual position values, a length measurement is carried out by the at least one position sensor ~~(6)~~.

42. (currently amended) The method according to claim 35, wherein, in the step of acquiring the actual position values, an angular position measurement is carried

out by the at least one position sensor ~~(6)~~.

43. (currently amended) The method according to claim 35, wherein the at least one position sensor ~~(6)~~ operates by magnetostriction, wherein the at least one position sensor ~~(6)~~ and at least one position transducer ~~(7 to 9)~~ acquire the actual position values of the at least one functional support ~~(3 to 5)~~.

44. (currently amended) The method according to claim 35, wherein with the rotary machine element is a workpiece carrier ~~(2)~~ embodied as a chuck, wherein the chuck is configured to clamp at least one workpiece type with different geometries.

45. (currently amended) The method according to claim 44, further comprising the step of controlling a movement course during clamping of the workpiece type by ~~an NC~~ a numerical control program and processing and saving the movement course by data processing devices.

46. (original) The method according to claim 39, wherein the measuring and checking steps relate to at least one of a clamping diameter, a workpiece length, and additional workpiece features.

47. (original) The method according to claim 39, wherein the measuring step is used for automatic workpiece type detection.

48. (original) The method according to claim 47, wherein the workpiece type detection is used for automatic recognition of different workpiece types which are supplied in a random sequence for machining.

49. (currently amended) The method according to claim 39, wherein the functions of measuring, checking, monitoring, and controlling are used for automatic detection of deviations of predetermined movement courses of the clamping process, including detection of a workpiece ~~(18)~~ being absent.

50. (original) The method according to claim 39, wherein the functions of measuring, checking, monitoring, and controlling are used for automatic recognition of impermissible workpiece movements during machining, including sliding of the workpiece (18) in a chuck as a result of high machining forces.

51. (original) The method according to claim 50, wherein the automated detection of impermissible workpiece movements effects an adaptive control of a clamping

action of the chuck and of a machining action being performed, wherein an increase or reduction of the clamping force and the feeding speed is carried out.

52. (currently amended) The method according to claim 39, wherein the function of measuring of the chuck is used as a corrective function for parameters of the numerical control program ~~NC-program~~.

53. (currently amended) The method according to claim 52, wherein the corrective function is used for recognition of axial or radial positions of the workpiece ~~(18)~~ in the workpiece carrier ~~(2)~~.

54. (original) The method according to claim 35, wherein nominal position values having correlated tolerances are provided, wherein the function of controlling is activated when the actual values surpass or drop below the nominal position values having correlated tolerances.

55. (currently amended) The method according to claim 35, wherein the nominal position values of the at least one function part ~~(3 to 5)~~ are determined by carrying out a reference movement course with a reference workpiece.

56. (currently amended) The method according to claim 35, wherein the nominal position values of the at least one function part ~~(3 to 5)~~ are predetermined by programming.

57. (currently amended) The method according to claim 35, wherein the rotary machine element ~~(1)~~ after exchange of at least one position sensor ~~(6)~~ is calibrated by a reference movement course.

58. (currently amended) The method according to claim 35, wherein the rotary machine element ~~(1)~~ after exchange of at least one position transducer ~~(79)~~ is calibrated by a reference movement course.